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EXAMINER	
CELSA, BENNETT M	

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/763,914	STAHLER ET AL.	
	Examiner	Art Unit	
	Bennett Celsa	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) *7,8 and 12-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9-11 and 34-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendment dated 2/16/05 is acknowledged.

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Status of the Claims

Claims 1-36 are currently pending.

Claims 1-6, 9-11 and 34-36 are under consideration.

Claims 7-8 and 12-33 are withdrawn from consideration as being directed to a nonelected invention.

Election/Restrictions

Applicant's election with traverse of Group I (claims 1-11) in Paper No. 9 Applicant's further election with traverse of nucleotides as the elected species which reads on claims 1-6 and 9-11 and 34-36 in Paper No. 9 is again acknowledged

2. This application contains claims 7-8 and 12-33 drawn to a nonelected invention. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Withdrawn Objection (s) and/or Rejection (s)

Applicant's amendment has overcome the rejection of claims 1-6, 11 and 34-36 under 35 U.S.C. 102(a,b,e) as being anticipated, or in the alternative as obvious over Winkler et al. 5,677,195.

Applicant's amendment has overcome the objection of claim 6 for the incorrect spelling of "olignuclectides".

Applicant's amendment has overcome the indefinite rejection of the term "large number of channels" and the lack of antecedent basis for the term "support body".

Applicant's amendment, arguments and submission of a terminal disclaimer has obviated the double patenting rejections previously of record.

Outstanding Objection(s) and/or Rejection (s)

3. Claims 1-6, 9-11 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winkler '195 and Fodor et al. WO 92/10092 (6/92) incorporated by reference in the Winkler '195 patent reference.

The presently claimed (e.g. claim 1) invention is drawn to: A method for producing a support for synthesizing polypeptide (monomers: amino acids) and polynucleotides (e.g. monomers are nucleic acids and analogs: see patent claims and further determining analytes, comprising the steps of

(a) providing a support, comprising a support body, comprising at least one channel, comprising a *fluid tight* conduit *with a top, a bottom and two sides* having an inlet and an outlet for passing fluid from the inlet to the outlet, in the support body,

(b) passing liquid with building blocks for synthesizing polymeric receptors through the channel or channels of the support body,

(c) site- and/or time-specifically immobilizing the receptor building blocks in each case on predetermined positions in the channel or channels by illumination and

(d) repeating steps (b) and (c) until the required receptors have been synthesized in each case on the predetermined positions , wherein

a. the syntheses process is being monitored and

b. the support is optically transparent at least in the region of the reaction positions and

c. the support is arranged between a programmable light source matrix and a detector matrix.

Winkler teaches the syntheses of polymer (e.g. peptides or oligonucleotides) substrate arrays for for use in screening studies for determination of binding affinity e.g. "for determining sample analytes" (e.g. see Winkler Abstract; col. 1, especially lines 10-20) comprising the steps of:

(a) providing a "support" comprising at least one channel (arranged on at least one surface anticipating claim 3) comprising a conduit having an inlet and an outlet for passing fluid from the inlet to the outlet (e.g. see Winkler figures 4-8, especially figures 5-7 and col. 11-12).

(b) passing liquid with building blocks (e.g. amino acids/nucleic acids) for synthesizing polymeric (e.g peptides/oligonucleotides) receptors through the channel or channels of the support body (e.g. see Winkler figures col. 10-11);

(c) site and/or time specifically immobilizing the receptor building blocks in each case on predetermined positions in the channel or channels by illumination (e.g. see Winkler col. 1, 13-15, 25-26 and patent claims) and

(d) repeating steps (b) and (c) until the required receptors have been synthesized in each case on the predetermined positions. See e.g. Winkler col. 1, 13-15, figures, examples and patent claims. The Winkler reference method can attach the receptor species in a homogenous manner (e.g. identical species) or heterogenously (e.g. nonidentical species) thus anticipating claim 2. The Winkler reference teaches a large number of preferably paralled channels. See e.g. figure 4 and col. 11. The reference clearly teaches the syntheses of nucleic acid (and analogs) anticipating claims 5 and 6; and patent claims .

The Winkler reference channels comprise a substrate (e.g. transparent: such as glass/quartz etc: see col. 14, especially lines 45 on) that provides " a three dimensional surface area for syntheses" (e.g. see figures); contain a plurality of different polymer receptors (e.g. see col. 2; col. 3 (" In a preferred embodiment, a plurality of reaction regions on the substrate") and patent claims) anticipating claims 35 and 36. Additionally, the reference teaches that the reference substrate can exist as "capillaries" (e.g. see col. 10, especially lines 14-25) which can be 20-60 or more parallel channels (e.g. 400, 8000: see col. 11 per substrate; see also col. Col. 15) thus rendering obvious several hundred parallel channels as per amended claim 4. The substrates forming the channels are within the scope of the presently claimed invention and are not Teflon-coated and thus would be expected to inherently exhibit capillary action or alternatively the reference discloses a substrate that is a capillary channel (anticipating claim 34) which contains a 3D reactive surface (anticipating claim 36). The Winkler reference

teaches a "fluid tight conduit (e.g. see col. 14, lines 45-67, preferably lines 56-65) with a top, a bottom and two sides" since:

i. the reference figures disclose channels possessing top/bottom/2 sides (e.g. figures, especially figures 5B, 6, 16a-b: numbers 704/705); and/or

ii. the patent claims teach "at least partially comprising $1^{st}/2^{nd}/3^{rd}$ walls which form fluid tight seals" (e.g. patent claim 1); and/or

iii. the reference channel embodiments include substrates comprising "tubing" and "capillaries" (e.g. see col. 10, lines 15-27). IN this respect, the reference teaches that "In some embodiments, the substrate itself" which contains "... flow through regions, etc. which form all or part of the syntheses regions" (bottom of col. 6) wherein the "substrate" "may be "... tubing .... capillaries" of various shapes (e.g. sphere, rectangle, circle) (e.g. see col. 10, lines 14-30) in which the substrate in preferred embodiments can be comprised of glass, pyrex, quartz, silicon (e.g. transparent materials) (e.g. see col. 14, especially lines 45-55).

The Examiner's rationale that a small reference genus (e.g. of substrates) can serve to either anticipate or alternatively render obvious a species (e.g. tubing and/or capillaries) under 35 USC 102 or 103 is consistent with both sound legal precedent and PTO practice. See e.g. *In re Schaumann*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978); MPEP 2131.02; MPEP 2144.08. The Winkler reference teaches that "the syntheses process is monitored" by the use of fluorescent intensity mapping. Eg. See col. 28-29.

The Winkler et al. reference method differs from the presently claimed invention by failing to explicitly teach that the support is arranged between a programmable light

source matrix (for illumination) and a detector matrix (amended claim 1 and present claim 9) and computer program patterning of polymeric receptors (amended claim 10).

However, the Winkler et al. patent reference teaches that the Fodor method technique of WO 92/10092 (incorporated by reference) is "an elegant method ... for using a computer-controlled system to direct a VLSIPS ™ procedure (e.g. see Winkler patent at col. 1-2, especially col. 2, lines 1-10). The Fodor method employs a computer programmable light source matrix in order to determine the pattern of polymeric receptor(s)/ligand(s) binding . E.g see Fodor at pages 18-29, pages 57-61; examples, figures (e.g. figures, especially figures 3-12 and claims). In this regard, Fodor et al. teach an automated method of producing a support for determining analytes comprising the steps of :

(a) a "reactor system" (e.g. see especially figures 3 and 10) comprising a preferably transparent substrate and a (support)body which seal (e.g. fluid tight) the cavity forming a channel (e.g. on at least one support surface) which has a top/bottom and two sides with an inlet/outlet ;

(b) monomers (e.g. "building blocks") pass into the channel and are site/time irradiated (e.g. illuminated) onto the surface of the channel at predetermined positions while repeating steps a and b to form the required receptor (e.g. peptide/nucleic acid) polymer.

The Fodor syntheses is monitored (e.g. computer) and the support is arranged between a programmable light source (e.g. and automated attachment of nucleic acids/polypeptides) and a detector (e.g. CCD) . Fodor teaches the use of substrates

and channels which would appear to exhibit "capillary action" since they are not Teflon coated and are composed of substrate materials within the scope of the presently claimed invention. The reference teaches applying different monomers (e.g. amino acids/nucleic acids) in different portions of the channels.

Accordingly, the Winkler et al. patent reference provides motivation to one of ordinary skill in the art to employ the Fodor automated light strategy in order to achieve an elegant screening technique.

Thus, it would have been prima facie obvious to one of ordinary skill in the art at the time of applicant's invention to modify the Winkler patent teaching to employ the Fodor method use of a (computer) programmable light source matrix in order to determine the pattern of polymeric receptors in an elegant manner.

Discussion

Applicant's arguments directed to the above obviousness rejection were considered but deemed nonpersuasive for the following reasons. Initially, it is noted that the above rejection was modified in response to applicant's amendment.

Applicant first argues that Winkler fails to teach "a conduit having a top, a bottom and two sides through which fluid flows" and "fluid tight channels".

This argument is not persuasive, since as discussed in the rejection above, Winkler's channel embodiments encompass the use of rectangular-like (e.g. have a top/bottom/two sides conduits formed by the channel block and substrate as disclosed and described in the drawings (E.g. see col. 12 and Figure 5; see also figures , 6 and

16) which form "fluid tight channels" (e.g. see col. 15). Additionally, Winkler suggests the use of "capillaries" or "tubing" as substrates (e.g. see Winkler at col. 10). Applicant's argument regarding the Examiner's rationale referring to "open channel or trench" mischaracterizes the above rejection.

Applicant further argues that the Winkler reference fails to teach the use of an "optically transparent support at least in the region of the reaction positions".

This is not persuasive.

The Winkler reference reaction supports (e.g. "substrates") are composed of materials (e.g. glass, quartz: see col. 14) within the scope of applicant's invention which are inherently "transparent" and thus permit irradiated attachment of amino acids/oligonucleotides onto their surfaces (e.g. see col. 20-21).

Applicant argues that Winkler fails to teach "monitored syntheses".

The above modified rejection points to the Winker reference teaching of fluorescent monitoring of synthesized peptides/oligonucleotides as meeting this newly introduced claim limitation. It is also noted that other means of syntheses monitoring is taught by the Fodor reference.

Applicant amends and argues that Winkler fails to teach arranging the support between "the programmable light source" and a "detector".

This is not persuasive since placement of the support between a detector and programmable light source is taught by the Fodor reference. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of

references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that the Winkler reference teaching is limited to the use of " a flat surface with depression and trenches onto which the receptors are synthesized" in which the flat surface or biochip is mounted on a support which may have channels for the delivery of reactants to the surface of the biochip for synthesis of the desired receptors". Applicant then argues that the syntheses reactions employing illumination only occurs on the substrate and therefore no reaction occurs on the surface of the channel block; and thus Winkler fails to teach syntheses of polymeric receptors on a 3D surface

Applicant's argument was considered but deemed nonpersuasive for the following reasons.

Initially, it is noted that Applicant's arguments regarding three dimensional synthetic surfaces of the presently claimed invention is only commensurate with claim 36. Regarding the other claims, the Winkler reference clearly teaches site and/or time specific immobilizing of receptors in channels containing fluid inlet/outlet by illumination within the scope of the presently claimed invention. In any event the Winkler reference clearly suggests the use of a 3D substrate (e.g. capillary/tubing: see Winkler at col. 10) which would permit syntheses on a 3D substrate.

Turning to the Fodor reference, applicant argues that Fodor fails to teach a 3D reaction surface.

Again it is noted that this argument is only commensurate with claim 36 and thus is not relevant to the other claims. In any event, in response to applicant's arguments against the Fodor reference individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As pointed out in the rejection above, the Winkler reference suggests use of tube/capillary supports which would be amenable to 3D. Additionally, the above rejection points out that both the Winkler and Fodor references teach the use of "transparent" substrates. Additionally, the above rejection further points out how the newly claim limitations are addressed by the combined Winkler and Fodor reference teaching.

Accordingly, the above obviousness rejection is hereby maintained.

4. Claims 1-6, 9-11 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winkler '195 alone or combined with Fodor et al. WO 92/10092 (6/92) incorporated by reference in the Winkler '195 patent reference as applied to claims 1-6, 9-11 and 34-36 above, and, if necessary, further in view of Yeung et al. US Pat. No. 5,741,411 (4/98: filed 5/95).

The teaching of Winkler '195 and the WO 92 references as described in the above 103 rejection is hereby incorporated by reference in its entirety.

To the extent that newly presented claims 34 and 36 are directed to selection of a channel possessing a 3D reactive surface (e.g. a capillary channel) the Yeung et al.

patent reference is offered as providing further motivation to one of ordinary skill in the art to utilize said 3D channels in the Winkler '195 method since Yeung et al. disclose and claim the *advantageous* use of parallel capillary (having a fluid inlet/outlet) arrays in optical computerized screening of analytes in the DNA context (e.g. using CID/CCD). See Yeung, abstract, disclosure and particulary patent claims.

Accordingly, it would have been prima facie obvious to one of ordinary skill in the art the time of applicant's invention to utilize a capillary substrate system in the Winkler '195 method in view of the Winkler reference enumeration of a capillary among a small list of possible substrate reaction surfaces as a preferred substrate and, if necessary, further in view of the assay screening advantages in the DNA setting of utilizing such substrates as further taught by the Yeung et al. reference.

Discussion

Applicant's arguments directed to the above obviousness rejection were considered but deemed nonpersuasive for the following reasons.

Applicant's arguments toward the use of the Winkler and Fodor references in the rejection; and the Examiner's rebuttal of applicant's arguments cited above, are hereby incorporated by reference in their entirety.

Regarding the Yeung reference applicant argues that the Yeung use of a capillary tube array in electrophoresis "is irrelevant to a method of synthesizing polymeric receptors on a three dimensional surface in a conduit" since "[N]o synthesis takes place in the capillary tubes of Yeung et al. and there is no motivation to combine

the array of tubes taught by Yeung et al. in the synthesis method as taught by Winkler et al."

This argument was considered but deemed nonpersuasive for the following reasons.

Initially, in response to applicant's arguments against the Yeung reference individually (e.g. failure to teaching array syntheses on capillaries), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Secondly, applicant's argument that screening is somehow irrelevant to syntheses is not understood since the purpose of making polynucleotides (or polypeptide) arrays on substrates is for purposes of screening. Accordingly Yeung's assay use of its DNA capillary arrays is highly relevant toward the syntheses of the DNA arrays in the first instance.

Thirdly, the above rejection provides a clear rationale for combining the Yeung capillary arrays which has not been rebutted by Applicant. The Winkler suggestion that their reaction substrates (which is used for making DNA arrays for screening) can take the form of "tubing" or "capillaries" (e.g. see Winkler at col. 10) and the Yeung et al. teaching of the *advantageous* use of parallel capillary (having a fluid inlet/outlet) arrays in optical computerized screening of analytes in the DNA context (e.g. using CID/CCD) would provide adequate motivation for the skilled artisan to utilize Yeung's "capillary"

substrate arrays for both making the arrays (as taught by Winkler) for DNA screening (as taught by both the Winkler and Yeung reference) .

Accordingly, the above obviousness rejection is hereby maintained.

Claim Rejections - 35 USC § 112

5. Claims 1-6, 9-11 and 34-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "fluid tight" in claim 1 (and claims dependent thereon) is a relative term which renders the claim indefinite. The term "fluid tight" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Discussion

Applicant's argument directed to the above indefinite rejection was considered but deemed nonpersuasive for the following reason.

Applicant argues that the term "fluid tight" "has its ordinary meaning of not allowing fluid to leak from the conduit, and is therefore not a relative term".

The Examiner respectfully disagrees.

Initially, it is noted that its applicant's responsibility under 35 USC 112, second paragraph to inform one of ordinary skill in the art what will and what will not infringe the presently claimed invention.

In the present instance the claim is addressing a "fluid tight" conduit which applicant asserts refers to those conduits which is "leak proof". However, there is no guidance in the specification as to how to attain a conduit structure which is "leak proof" nor is there any means of testing a given conduit for leaks such as to determine whether a given conduit is "fluid tight" and thus infringing. Additonally, applicant's proposed definition is confusing, since a conduit which has an inlet and outlet can hardly be defined as being "fluid tight" (e.g. leak proof).

Accordingly, the above indefinite rejection is hereby maintained.

6. Claims 1-6, 9-11 and 34-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. (e.g. NEW MATTER REJECTION).

The After-Final amendment entered with the filing of the present RCE application (dated 11/13/04) amended claim 1 to recite "... a support ... comprising a **fluid tight** conduit with a top, a bottom and two sides having an inlet and an outlet..." (newly added limitation in bold) citing support in the device depicted in Fig. 3 without further explanation.

Upon review of the specification, the Examiner was unable to find explicit support for the above added bolded limitation. Additionally, the drawing did not provide support for the term "fluid tight". There is nothing in the drawing that indicates that the conduit is

"fluid tight" since there is no indication of the degree of porosity of the depicted support and/or whether liquid introduced into the channels would drip and/or leak out at any portion of the depicted channels. Additionally, the term "fluid tight" is relative and the degree of fluid leakage is a function of different variables (e.g. support chemical composition) none of which can be determined from the figure.

Discussion

Applicant's argument directed to the above new matter rejection was considered but deemed nonpersuasive for the following reasons.

Applicant argues that "the disclosure inherently support the term 'fluid tight' as in claim 1". In support thereof applicant points to page 11, lines 29-37 which discloses that the channels (conduits) in the support are microchannels, preferably capillaries.

This argument was considered but deemed nonpersuasive.

The specification at page 11 discusses a "biochip" which is composed of microchannels, preferably capillaries, but fails to explicitly or implicitly teach that these microchannels (capillaries or otherwise) are "fluid tight"; nor has applicant provided any experimental support that any of the disclosed microchannel embodiments are "fluid tight" under any experimental circumstances. There is no indication of the degree of porosity of the depicted support and/or whether liquid introduced into the channels would drip and/or leak out at any portion of the depicted channels. Additonally, a conduit which has an inlet and outlet can hardly be defined as being "fluid tight".

Accordingly, the above new matter rejection is hereby maintained.

New Objection (s) and/or Rejection (s)

7. Claims 1-3, 5-6, 9-11 and 34-35 are rejected under 35 U.S.C. 102(a,b,e) as being anticipated by Fodor et al., US Pat. No. 5,424,186 (6/95).

The presently claimed (e.g. claim 1) invention is drawn to: A method for producing a support for synthesizing polypeptide (monomers: amino acids) and polynucleotides (e.g. monomers are nucleic acids and analogs: see patent claims and further determining analytes, comprising the steps of

(a) providing a support, comprising a support body, comprising at least one channel, comprising a *fluid tight* conduit *with a top, a bottom and two sides* having an inlet and an outlet for passing fluid from the inlet to the outlet, in the support body,

(b) passing liquid with building blocks for synthesizing polymeric receptors through the channel or channels of the support body,

(c) site- and/or time-specifically immobilizing the receptor building blocks in each case on predetermined positions in the channel or channels by illumination and

(d) repeating steps (b) and (c) until the required receptors have been synthesized in each case on the predetermined positions , wherein

a. the syntheses process is being monitored and

b. the support is optically transparent at least in the region of the reaction positions and

c. the support is arranged between a programmable light source matrix and a detector matrix.

Fodor et al. Teaches a method of producing a support (e.g. see col. 2-top of col. 3) for determining analytes (e.g. see bottom of col. 3; col. 13; col. 26) comprising the steps of :

(a) a "reactor system" (e.g. see Fig. 22a-b: Fig. 35: col. 32-34)comprising a preferably transparent substrate (112 in Fig. 22) and a (support)body which seal (e.g. fluid tight) the cavity forming a channel (e.g. on at least one support surface)which has a top/bottom and two sides with an inlet/outlet ;

(b) monomers (e.g. "building blocks") pass into the channel and are site/time irradiated (e.g. illuminated) onto the surface of the channel at predetermined positions while repeating steps a and b to form the required receptor (e.g. peptide/nucleic acid) polymer.

The syntheses is monitored (e.g. computer) (see e.g. Figures 4 , 23 and 24: col. 35-36) e.g. the Fodor method employs a computer programmable light source matrix in order to determine the pattern of polymeric receptor(s)/ligand(s) binding . E.g see Fodor at pages 22-29; examples and claims; and the support is arranged between a programmable light source (e.g. and automated attachment of nucleic acids/polypeptides) and a detector (e.g. CCD) (e.g. see col. 60-63; and Fig. 35). Fodor teaches the use of substrates, including capillaries (e.g. see col. 14, especially lines 45-65) and the channels would appear to exhibit "capillary action" since they are not Teflon coated and are composed of substrate materials within the scope of the presently claimed invention (e.g. anticipating claim 34). The reference teaches applying different

monomers (e.g. amino acids/nucleic acids) in different portions of the channels (e.g. see col. 34-35) anticipating claim 35.

8. Claims 1-6, 9-11 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fodor US '186 as applied to claims 1-3, 5-6, 9-11 and 34-35 above, and further in view of Yeung et al. US Pat. No. 5,741,411 (4/98: filed 5/95).

The teaching of Fodor US '186 reference as described in the above 103 rejection is hereby incorporated by reference in its entirety.

To the extent that newly presented claims 34 and 36 are directed to selection of a channel possessing a 3D reactive surface (e.g. a capillary channel) the Yeung et al. patent reference is offered as providing further motivation to one of ordinary skill in the art to utilize said 3D channels in the Fodor '186 method since Yeung et al. disclose and claim the *advantageous* use of parallel capillary (having a fluid inlet/outlet) arrays in optical computerized screening of analytes in the DNA context (e.g. using CID/CCD). See Yeung, abstract, disclosure and particulary patent claims.

Accordingly, it would have been prima facie obvious to one of ordinary skill in the art the time of applicant's invention to utilize a capillary substrate system in the Fodor '186 method in view of the Fodor reference enumeration of a capillary among a small list of possible substrate reaction surfaces as a preferred substrate and, if necessary, further in view of the assay screening advantages in the DNA setting of utilizing such substrates as further taught by the Yeung et al. reference.

Conclusion

9. Applicant's amendment and/or Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 3/22/05 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § § 609(B)(2)(i); 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Further Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bennett Celsa whose telephone number is 571-272-0807. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bennett Celsa
Primary Examiner
Art Unit 1639

BC
May 20, 2005